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DOUBLE TAP PELLET BAIT for the control of POSSUMS & RATS

BACKGROUND

Anticoagulants are effective rodenticides. Possums are not as susceptible as rats but potent 2nd generation anticoagulants, such as brodifacoum, will also kill possums. Potent 2nd generation compounds persist and bio-accumulate and cause secondary poisoning which has advantages in some predator control situations. Risks linked to persistence and bioaccumulation outweigh benefits when there are food safety concerns regarding residues in wild game or when secondary poisoning of native birds occurs. Widespread 2nd generation anticoagulant exposure in non-target species has been documented globally, including the USA, Norway, Denmark, Great Britain, Spain, Australia, Malaysia & New Zealand. Long-term studies have explicitly demonstrated an increasing trend in exposure and residue concentrations over time. Field use of 2nd generation anticoagulants is restricted in many countries.

WHAT IS DOUBLE TAP

Double Tap Pellet Bait 12g is unique, cost effective, highly palatable and combines the environmentally friendlier features of a 1st generation anticoagulant with the naturally occurring substance Vitamin D3 (Cholecalciferol) to produce a bait that has the efficacy of 2nd generation anticoagulants, without their well-documented environmental persistence. Each bait contains 0.05g/kg of Diphacinone and 0.60g/kg of Cholecalciferol. Double Tap is effective at killing possums and rats with a similar potency to brodifacoum baits but without residue concerns.

A controlled substance licence is not required.

PERSISTENCE IN THE ENVIRONMENT

Vertebrate pesticides differ in the way they are absorbed, metabolised, distributed & excreted. Second-generation anticoagulants such as brodifacoum are slowly metabolised and bioaccumulate. This has led to secondary poisoning and sub-lethal contamination of non-target species. The 1st generation anticoagulant in Double Tap (Diphacinone) is metabolised relatively quickly meaning it is less likely to bioaccumulate and put our non-target species at risk. If game species are exposed to bait, they will void these compounds quickly. Cholecalciferol is readily metabolised and does not persist in the environment.

		Half Life in Days	Likely persistence of residues in sub-lethally exposed game
Brodifacoum		>250	>24 months
Diphacinone	Double Tap	<3*	2-4 weeks
Cholecalciferol (Vitamin D3)	Double Tap	30	N/A natural occurring in all animals

* rats. Fisher et al 2003

During each half-life, 50% of the pesticide at the beginning of that half-life is eliminated. A long half-life means the pesticide is more likely to bioaccumulate in non-target wildlife.

WELFARE

The average time to death for rats and possums is shorter using Double Tap than Brodifacoum where sickness is protracted and time to death variable**.** Double Tap gives a more consistent effect.

SECONDARY POISONING & NON-TARGET RISK

Secondary poisoning risk from Diphacinone and Cholecalciferol is low when compared to compounds like 1080 and Brodifacoum. Nevertheless, it is imperative companion animals and livestock are not allowed access to baits.

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RESULTS: SINGLE FEED CAGE TRIALS

Consumption of Double Tap Bait & Time to Death

Double Tap Pellet Bait containing two "low-residue" compounds Diphacinone at 0.005% and Cholecalciferol at 0.06% as an additive is effective at killing possums and rats with a similar potency to Brodifacoum baits but with a comparatively faster time to death.

	Amount of Bait Presented per Animal	Average amount of Bait Consumed per Animal	Efficacy in Cage Trials	Average Time to Death (days) for Double Tap	Average Time to Death (days) for Brodifacoum
Possums	200g	71.1g	86.7%	6	20
Ship Rats	100g	10.0g	85.7%	5	6

RESULTS: FIELD TRIAL

Two field sites 30km south east of Taupo of 200 hectares each were chosen for trials. A non-treatment area also of 200 hectares was located 1 km away. Baits were removed after two months. The vegetation was predominantly plantation pine with some native scrub.

Area, Number of Bait Stations & Replenishment

Site #	Area in hectares	Total Number of Bait Stations (one per hectare)	Initial Loading of Double Tap baits per bait station	Replenishment after 1 month where bait take apparent	Total Bait Consumed over two months
1	200	200	1kg	1kg	35kg
2	200	200	1kg	1kg	30kg

Results of Field Trials

Site	Species	Pre-monitor	Post Monitor	% reduction
1	Possums	6.66%	0.66%	90%
1	Ship Rats	26.00%	2.00%	92%
1**	Mice	44.00%	6.00%	86%
2	Possums	10.00%	1.33%	87%
2	Ship Rats	12.00%	0.00%	100%
2**	Mice	42.00%	6.00%	86%
Control	Possums	2.03%	4.00%	n/a
Control	Ship Rats	16.00%	12.00%	n/a
Control	Mice	30.00%	20.00%	n/a

** not claimed on registered label

MODE OF ACTION

Diphacinone interferes with normal blood clotting by depleting functional Vitamin K reserves and therefore reducing the synthesis of active clotting factors. A low dose of Cholecalciferol enhances the haemorrhagic effect of 1st generation anticoagulants. Post-mortem assessment of rats containing Double Tap showed substantial haemorrhaging. Similar effects could be expected in most other species.

PRICING

Size	Price (excl GST & freight)
2kgs	$50.00
4.5kgs	$67.50
10.kgs	$125.00